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EXAMINER
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WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/511,014

Applicant(s)

SEO ET AL.

Examiner

Jeff Wollschlager

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

Applicant's election with traverse of Group I, claims 1-4, in the reply filed on October 20, 2006 is acknowledged. The traversal is on the ground(s) that the special technical feature linking the claims defines a contribution over the prior art and as such, unity of invention is present and the restriction is improper. This is not found persuasive because 1) the recitation "thermoplastic fiber" is a broad term that is not defined in the specification to such a degree that it reasonably excludes thermoplastic polymer pellets as taught by Bastioli et al. 2) The process disclosed by Bastioli et al. employ the same claimed materials in the same claimed process. Therefore, the method taught by Bastioli et al. necessarily achieves the same claimed effects and physical properties (e.g. coiled fiber shape and three-dimensional structure). 3) The applied prior art in the instant office action further supports the examiner's conclusion that the special technical feature linking the claims is known in the prior art and as such unity of invention is lacking.

The requirement is still deemed proper and is therefore made FINAL.

***Specification***

35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: "volatilizing" fibers; "pseudo-foamed composite sheet by inherent resilience of the fiber"; "webber"; "vibration strippers"; "preheating" used to refer to steps performed at the end of the claimed process.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 1, the preamble of the claim discusses extruding a composite mat, but there are no manipulative steps in the body of the claim that comprise extrusion. The limiting effect of the claim is unclear. Claim 1 further recites, "volatilizing the combined fibers". The limiting effect of this recitation is unclear. Claim 1 further recites, "to increase dispersibility". It is unclear how dispersibility is increased from the steps recited in the claims. Additionally, claim 1 is unclear because the limitation, "maintain a coiled fiber shape and three-dimensional structure of the fiber in the mat" is unclear as to its limiting effect.

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Claim 2 recites "preheating". However, the preheating step occurs at the end of the process performed in claim 1. The use of the term "preheating" at the end of the process renders the claim indefinite because it is unclear whether additional essential process steps are required and not currently claimed. Claim 3 is indefinite because the recitation "the compressing zone" lacks antecedent basis. Further, the claim to "a pseudo-foamed composite sheet by inherent resilience of the reinforcing fiber" is unclear as to its limiting effect. Claim 4 is unclear because the manipulative step employed to increase the thickness and width of the mat with "a continuous stainless belt and a magnet roller" is not recited.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Bastioli et al. (U.S. Patent 5,145,626; issued September 8, 1992).

Regarding claim 1, Bastioli et al. teach a method of manufacturing a fiber-reinforced composite comprising: fibrillating and combining thermoplastic fiber and

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reinforcing fiber to form combined fibers; dispersing and volatilizing the combined fibers to form a composite mat; and needle-punching the composite mat (Abstract; col. 1, line 59-col. 2, line 57; col. 3, lines 40-65; col. 4, lines 27-30; Figure 1, elements (3), (4), (5), (6)).

As to claim 2, Bastioli et al. teach heating the material after needle punching and cooling the mat to obtain a composite sheet (Figure 1, element (8) (9), (10), (13), (14)).

As to claim 3, Bastioli et al. teach reheating the composite sheet through a compressing zone (Figure 1, elements (9), (10), and (13)).

Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Davies et al. (U.S. Patent 6,881,288; filed December 11, 2001).

Regarding claim 1, Davis et al. teach a method of manufacturing a fiber-reinforced composite comprising: fibrillating and combining thermoplastic fiber and reinforcing fiber to form combined fibers; dispersing and volatilizing the combined fibers to form a composite mat; and needle-punching the composite mat (Figure 9; col. 17, lines 21-25; col. 18, lines 5-col. 19, lines 27; col. 20, lines 8-35).

As to claim 2, Davis et al. teach heating the material after needle punching and necessarily cooling the finished mat to obtain a composite sheet (Figure 9, elements (114), (82); col. 21, lines 61-65).

As to claim 3, Davis et al. teach the steps to form the mat may be processed multiple times as needed (col. 22, lines 1-2).

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Kane et al. (U.S. Patent 6,502,289; filed August 4, 1999).

Regarding claim 1, Kane et al. teach a method of manufacturing a fiber-reinforced composite comprising: fibrillating (e.g. shaving) and combining thermoplastic fiber and reinforcing fiber to form combined fibers; dispersing and volatilizing the combined fibers to form a composite mat; and needle-punching the composite mat (Figure 1A – 1D; col. 2, lines 25-61; col. 3, line 47- col. 4, line 8; col. 4, lines 67 – col. 5, lines 35; col. 5, lines 63 – col. 7, line 27).

As to claim 2, Kane et al. teach heating the material after needle punching and cooling the mat to obtain a composite sheet (col. 7, line 50 – col. 8, line 15).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis et al. (U.S. Patent 6,881,288), as applied to claims 1-3 above, or Bastioli et al. (U.S. Patent 5,145,626), as applied to claims 1-3 above.

As to claim 4, both Davis et al. and Bastioli et al. individually teach the method of claim 3 as discussed in the 102 rejections above. Davis et al. and Bastioli et al. are silent as to the materials of construction employed for the belt and rollers. However, employing a conventional stainless belt as the belt in the method of either Davis et al. or Bastioli et al. or a broadly defined magnet roller (e.g. roller made of iron) as the roller in the method of either Davis et al. or Bastioli et al. would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention since such materials are well-known and routinely employed in the art for belts and rollers. The examiner notes that the claim does not include a clear manipulative step. As such, the claim is examined to the extent possible in accord with the examiner's current understanding of the claim limitations.

### **Conclusion**

All claims are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-



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8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager  
Examiner  
Art Unit 1732

November 6, 2006

  
CHRISTINA JOHNSON  
SUPERVISORY PATENT EXAMINER

11/13/06